

TECHNICAL DEPT.

AVIATION

The Oldest American Aeronautical Magazine

OCTOBER 31, 1927

Issued Weekly

PRICE 20 CENTS



Photo of the "Pride of Detroit" taken at sunset as it flew over Shanghai, China.

VOLUME
XXIII

NUMBER
18

Special Features

The S.A.E. Aeronautic Meeting
The Schneider Trophy Race Through American Eyes
The Wind Tunnel and Its Contribution to Aviation

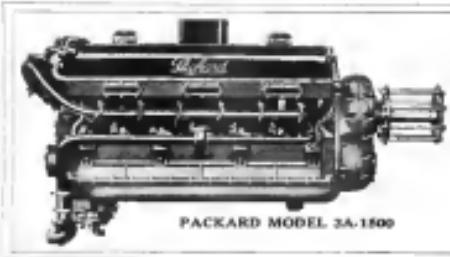
AVIATION PUBLISHING CORPORATION

Editorial and Business Offices
250 WEST 57 STREET, NEW YORK
Publication Office
HIGHLAND, N. Y.

Entered as Second-Class Matter, Nov. 22, 1920, at the Post Office, at Highland, N. Y.
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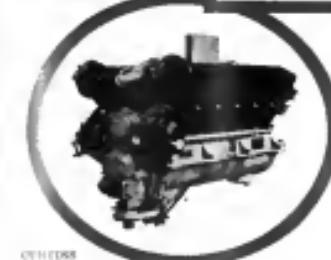
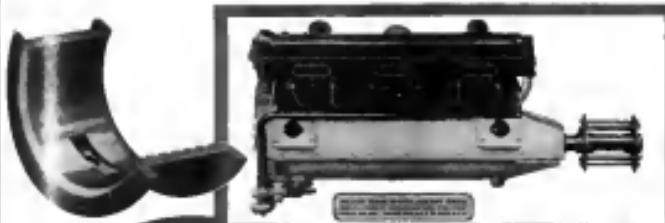


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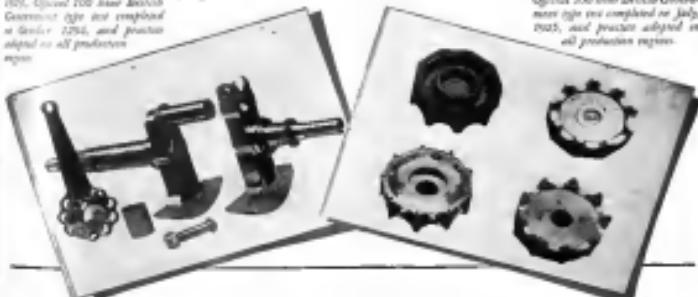
Solid Master Rod and Split Crankshaft

Design began November, 1922;
Design completed June, 1923;
First J-1 produced July, 1924;
Preston completed November, 1925; Official 200 h.p. Bristol Government type test completed at Bristol, 1926; and practice signed off all production engines.

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Design began Aug., 1923; Design completed December, 1923; First J-1 produced May, 1925; First engine completed June, 1925; Official 200 h.p. Bristol Government type test completed in July, 1925; and practice signed off in all production engines.



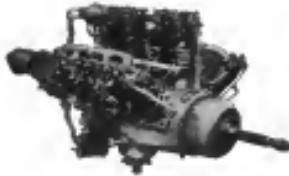
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New York-Buenos Aires, by Dragoon, Olivere and Comperey, in a S. A. V. O. I. A. Flying boat, with a 450 H. P. engine.

1926

3,000 miles in 3 days, by Avawakar and Carol.

(Circuit des Capitales), in a Peugeot XXV, with 450 H. P. engine.

6,500 miles in 6 days, 18 hours, Paris-Peking by Pelleter-Dossey and Carol in a Breguet with 450 H. P. engine.

6,500 miles in 9 days, (9 stops) Tekiro-Copenhagen by Captain Haldor flying a Fokker with 450 H. P. engine.

4,000 miles in 41 hours 45 minutes, total time, Paris-Rome-Tunis-Casablanca-Paris by Pelleter-Dossey and Gourin in a Peugeot 25 with 450 H. P. engine.

1927

15,000 miles in flying boat across Africa by Captain de corvette Guibaud and machine gunner.

Crossing South Atlantic, from Bahama to São Fernando de Noronha, 1,000 miles in a non-stop night flight of 17 hours, 30 minutes by Major Samoussis de Estrela.

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AVIATION

Aviation Publishing Corporation

Business and Editorial Offices
250 West 57th St., New York City
Cable Address: AERGENUS

Publication Office
Highland, New York

EARL D. GRISWOLD
President and Editor

LESTER W. GARDNER
Publisher

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Vol. XXXII

OCTOBER 31, 1927

No. 18

Index to Contents

NEWS ARTICLES AND ITEMS

Pilot Mexico-U. S. Airlines	1000
Events and Announcements for Safe	1003
Aircraft Competition	1007
Weather Reporting Stopped	1007
Lionair Aircraft Co. is Now Producing	1009
Ten Years of Work	1009
Fredrick Knob, Junior Aeromach	1009
The S. A. E. Aeromachic Meeting	1009
Edgar Cessna is Specialist in Steel Hangar	1009
Construction	1009
Continental Gets Mail Contract	1009

FEATURES AND DEPARTMENTS

Editorials	2049
The Schneider Trophy Race Through American Eyes	1066
The Wind Tunnel and Its Contribution to Aviation	1054
The Boeing Shipboard Fighter	1056
Superior Aviation Works Completes Twin Engined Boat	1062
Fast Flying Figures About the Napier "Lion" Racing Engine	1063
Foreign Aeronautical News	1064
Side Slips	1064
Airports and Airways	1066

WHERE TO FLY	1000
1000 PART SERVICE DIRECTORY	1000-1001
1000 SPOTTED ADVERTISING	1002-1003
1000 OUTSTANDING	1004

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With the Editor

On page 2000 of this issue of AVIATION as to be found an eye-witness story of the recent Schneider Trophy Race written by Max Lester D. Glazebrook, publisher of AVIATOR, and official observer of the race for the National Aeromachic Association.

Among the many interesting features at the other end of which Major Gardner writes is that of the highest lap speed attained by the contestants. When news of Great Britain's triumph was first received in this country it was reported that Flight Lieutenant René Fonck had piloted a Blériot Nieuport IV over one lap of the course at the speed of 289 m.p.h. However, according to Major Gardner this lap speed was posted in error and that Flight Lieutenant Kiadeau's highest lap speed was only 271 m.p.h. Such being true, the highest lap speed should be credited to the winner of the race, Flight Lieutenant S. N. Webster, R.A.F., who averaged 281.65 m.p.h. for the entire course and varied but a second or two in the times for the various laps that he flew.



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Vol. XXIII

OCTOBER 31, 1927

No. 18

The Pioneer Manufacturer

NOW THAT aviation has assumed to be steadily an art in taking its rightful place among the industries of the world it would seem advisable for the pioneer aircraft manufacturer to take full stock of himself and his own particular plant. The day of laboring and experimenting for the love of the game is gone, and in its place we now have an industry that will still be born and still experiment, but not for personal glory or gain alone. Instead, the perpetual objective will be the accumulation of dollars and cents, and to attain that objective the industry will be conducted along solid, hard business lines.

For that reason alone, the aeronautic manufacturer who has been toiling daily for the last decade or more will do well to realize that his future success will be dependent upon the quality of his designs and also upon the way he conducts his business. By he a business man as well as an engineer, then so much the better. But to be only an engineer, then it will pay him to analyze the management of his business in favor of someone who can conduct it in the most profitable way. Such would not mean the loss of financial control, nor the stripping aside in his own judgment, but rather an avoidance against the possible loss of years of effort. Whether it be airplanes or planes, financial success is stages I by the application of sound business methods. Provided, of course, that the product is valuable. And it will be that will make application of sound business methods that will speak for itself five and ten years hence when those not connected with aeronautics will be in the minority. Pleasing efforts and advertisements are no longer to be believed important, but when they are, then is the time to be on the alert lest they soon be forgotten in the machinations of commercial enterprise.

Stock Control Value

STOCK CONTROL has long since proven its value insuring business, and there seems to be no reason why the manufacturer, distributor or service man should be the exception to the rule. Yet there is in the aeronautical industry, as in other industries, a tendency to regard the maintaining of inventories with unnecessary systems as a secondary, not an unnecessary expense. This is due to the fact that in particular instances there is little or no pressure to concern strict attention to this point. That his pocketbook is sufficiently filled to meet an occasional expenditure of some \$20,000 to \$30,000 for his business is all that is required. However, history is full of small organizations going to the wall

stockholders. And for that reason it would seem that it would not be a question of whether the particular firm could afford to incur inventory expenditures, but rather to afford NOT TO.

Stock control is not as complicated as it is oft times believed to be, provided that it is not put into practice in a hit and miss manner. In the end it will save far more than it costs, and now that the aeronautical industry is in its infancy it would seem highly advisable for each and every manufacturer, distributor and service organization to give the matter profound consideration as a step toward future business success.

The Mexican Embargo

THE EMBARGO against shipping arms or instruments of war into Mexico has been in force against airplanes for some time and its effects are beginning to be felt. Last summer a Colorado ranch manager, who also had racing interests in Mexico, purchased a pilot candidate in order that he might more easily attend to his widely separated properties. The State Department, however, refused to grant him permission to fly into Mexico although he had no intention of selling his plane or of using it for other than civilian purposes. Due to the inadequate transportation facilities Mexico offers a very good market for American civilian aircraft and American aircraft should be encouraged to give demonstrations rather being prohibited from entering the country.

A Mexican military mission has recently arrived in Paris with considerable funds for the purpose of purchasing military airplanes for the Mexican army. The United States would be a much more logical place to make these purchases but unfortunately the embargo on arms does not permit it. As the Mexican government is bound to purchase planes it seems to be either a foolish policy to force them to go to Europe for their material. We are not only depriving our manufacturers of an outlet for their goods but are building up a source of supply which may in the Mexican government eventually include the United States.

Although at the present time the airplane factories of the United States are fully occupied in meeting the present demands, there will undoubtedly come a time when the export business will become as important to airplane manufacturing as it has become to automobile manufacturing. The Department of Commerce has realized this and has sent a mission to South America to find out what the market is and to boost American planes. It is hoped that our relations with our neighbors on the south will become such that this important market will not be closed to American manufacturers.

The Schneider Trophy Race Through American Eyes

By LESTER D. GARDNER



LONG BEFORE the winner of the Schneider Trophy race at Venice was granted in Alcalá, Spain, a news paper will have printed the details of the most dramatic section of the British entry. It will therefore be necessary to this article to give some of the impressions to which there will then be no longer news.

Having attended the last two Schneider Trophy races at Baltimore, Md., and the other at Sestri, Italy, it is been interesting to the writer to observe the comparison of beauty and skill shown in the management and in lack of the most at Venice by the Italian officials.

Venice in Holiday Regalia

The most significant and impressive fact that appealed to an American observer was the intense popular enthusiasm of the whole Italian people concerning this premier aviation contest. Venice was in full, flags, bunting, tapestries and posters were everywhere. The stands were crowded with gondolas and other small boats of every description. Thousands of Indians, English, Germans and Americans tourists over on the narrow streets, while St. Mark's Palace was filled both day and evening with a gay and happy throng.

Venice, while an excellent place to hold the race from the standpoint of water conditions, does not suffice, however, to water craft to carry the crowds to the Lido where the race was held. The Lido is a narrow island that separates the lagoon in front of Venice from the principal tidal channel of the Adriatic Sea where a number of ferries had been put off by the concessionary piers. From Venice to the Lido about fifteen minutes by boat, but when two hundred thousand people try to get across at the same time, the trip will be self-explanatory. Even more difficult was the return trip, as the publisher of AVIATION having to cross a very uncomfortable gondola of the pre-war Italy type.

The Crown Prince of Italy came to Venice with a large

party of a great familiarity to the occasion. His presence is no doubt of the greatest value to everyone in trying to make the best of the service. Participation of the first flight that was mentioned above, along with our hosts in Europe is the privilege of the highest officials of each country. Kings, presidents, and members of the nobility invariably attend, and in the United States it has been extremely difficult to secure the attendance of the cabinet members most important. Our press in Europe is represented with a mark greater or more numerous than in the United States, and therefore, attracts more influential passengers.

The preparations for the race were admirable. The battles for the British and English entries were fought on the basis of an effort opposite one another so that while the two could exchange friendly courtesies only, they also could, when called upon, have complete privacy. One noticeable feature was that the public was kept away from the landing fields which made for much better conditions than at any other similar meet that the writer has ever attended.

Landings in Boxes of Razors

The Under Secretary of State for Aeronautics, His Excellency H. H. Wilson, accompanied with a large staff of officials of the Royal Indian Air Force. Before the race, he presented a fine luncheon given by the Air Ministry in honor of the participants in the race at the Emperor's Palace Hotel in the Lido. About 300 guests attended, and the representatives of the National Aeronautic Association, was honored by being seated at the guest table between General Georges de Prusse and Gen. Viscount Marshall Sir Bertram Brooker. General Hahn, Lt. Col. Philip Stanhope, undersecretary for air, and Lt. Col. W. M. Wilson, R.A.F., commanding officer of the Royal Flying Corps, were the only speakers, both paying great tribute to the opposing young fliers. It is of interest to note that Lt. Philip Key to Venice for the race, leaving East Africa at 5:30 A.M. and arriving at Venice at the late afternoon.

Before the massing-out trials, use of the British plane-

part of a gun battery to the occasion. His presence is no doubt of the greatest value to everyone in trying to make the best of the service. Participation of the first flight that was mentioned above, along with our hosts in Europe is the privilege of the highest officials of each country. Kings, presidents, and members of the nobility invariably attend, and in the United States it has been extremely difficult to secure the attendance of the cabinet members most important. Our press in Europe is represented with a mark greater or more numerous than in the United States, and therefore, attracts more influential passengers.

The Short-Grenadier had a serious accident, which fortunately did not injure the pilot. While the cause of the crash was not officially made public, there was much discussion of the possibility of the aircraft controls having been crossed.

The morning-out test which occurred three days before the race was passed by all of the entries except one of the British planes which failed to pass properly but the day after was permitted to complete its trials.

Kiss, Hesley Between Teams

Before the race, the rivalry between the two teams was felt everywhere. Major de Bernardi who was the cap for Italy last year at Norfolk had a large following of admirers, but Capt. Arturo Ferrarin, a Venetian, and regarded as one of Italy's greatest speed pilots naturally aroused the greatest popular enthusiasm in his home city. Captain Giannini and the reserve pilot Captain Giannini were somewhat overshadowed by their better known team mates.

The British team were unknown in racing form, having been selected to form a high speed unit by the Air Ministry. The team was not made up the result of any preliminary selection trials, but the members of the party were eminent and they were ordered to the special duty of bringing the Schneider Trophy back to England. The participation of England in the race this year involved the necessity of work previously necessary to a guarantee by all responsible for the plane, crew and engine to win the cup. Air Vice Marshal Sir John Higginson, Air Vice Marshal for the Royal Naval Air Service and Viscount H. P. Borthwick, who was in charge of the team for the Air Ministry, were probably the most easily recognized officials present, as they bore the full responsibility for the success of the venture.

Before the race there was the usual discussion of possible speeds. Whatever the course, prepared by ALLISON, showing the speeds of the previous year and reducing a speed



Flight Lieut. H. H. Wilson, R.A.F. crossing the finish line in his Imperialist biplane in the winner of the race Schneider Trophy race.



Lieutenant Hesley, R.A.F. taking part in his Gloster IV (Biplane) in the winning biplane prior to the race Schneider Trophy.



(Fig. 1) Diagram of the Wright brothers' first wind tunnel, 1901. Speed 40 m.p.h.

The Wind Tunnel and Its Contribution to Aviation

By E. N. FALIS
Associate Professor, Air Corps,
Military Defense, Bureau of

THIE WIND tunnel's contribution to aviation may best be gauged by recalling that the Wright Brothers' original gliders were made possible by their wind tunnel work of 1897. They developed a means of moving air in a stream which a smoothly-flowing stream of air was magnetized by means of a fan. In this artificial wind they introduced many shapes of small model wings, 1° to 6° in angle. The air forces on each were measured by a sensitive balance at known velocities and recorded as curves of lift and drag. During this time, many shapes were tested giving the greatest lift for the smallest resistance.

It was by these tests on little metal models 3/800 scale, and after the Wrights solved the problem of mechanism, flight. They arrived at the conclusion that the best shape was the flat-topped one, having the maximum number located about 1/3 the distance from front edge to rear edge, and having the angle of the trailing edge about 1/20 the distance. It was only after the wind tunnel had shown the way that the first successful power flights were made in 1903.

With the exception of those early days, the Wrights conducted no further wind tunnel experiments on an exact science, and in their later man-elevating flights they definitely verified the correctness of

the coefficients measured on the small models. It should also, before this time, no exact lift and resistance curves were available to them. The first wind tunnel tests of Langley had been extremely inaccurate, and he never permitted them the wind tunnel, viz.—a rotating arm upon which the models were whirled around in a circle thus test.

Not only did the Wrights depend on the wind tunnel, but they also used it to study and to create a series of propeller designs for aircraft. Marine propeller problems must be studied in the test bed, and these were under as the propellers to satisfy himself of the merits of a proposed airplane project, without awaiting actual flight tests of his product.

The utility of such tests is well illustrated by the case of the Boeing B-17 Bomber. This, with its six engines was, in 1922,



(Fig. 2) Aerial photo taken during 1941 visit of the 25th Wing meeting. A 1/16 scale model was then used in wind tunnel.

lift and resistance coefficients for the models, the running-wheels were eliminated for each model, and the sum of all forces on all the angular coefficients was assumed to show what thrust had to be exerted to give and what horsepower that would be required.

These coefficients, or "coefficients of lift and drag," were discussed in the test-hands, and then verified the calculations. Reference to the graph shows the movement with which low angles of attack were tested, to those out door sections to break low wind tunnels much larger than the Wrights'. From the readings of his wind tunnel records and the numerous technical reports therein, the success of Langley covered a great capacity. He adopted the use of wind tunnels for purposes of short duration. His transonic propellers, by actually rotating them in the air-stream, he measured pressure distributions on model wings and found that a "resistance" above the wing contrived by the local "lift". He measured the resistances of slender shapes, struts, wires, wheels, cylinders, spheres, etc. Since then, about forty wind tunnels (20 in the U.S.) have been built, and the use of wind tunnels has increased 200 percent, constituting an essential factor in the science of aerodynamics. The character of work done was rapidly double wind tunnel two classes.

Contor Effel Experimenting

Then, at this time in France a civil engineer named Gustave Eiffel. He had tried to determine simple air-form coefficients by such indirect means as dropping objects from the top of Eiffel Tower and plotting the time of fall to determine the drop, compared with the square root of velocity method to those out door sections to break low wind tunnels much larger than the Wrights'. From the readings of his wind tunnel records and the numerous technical reports therein, the success of Langley covered a great capacity. He adopted the use of wind tunnels for purposes of short duration. His transonic propellers, by actually rotating them in the air-stream, he measured pressure distributions on model wings and found that a "resistance" above the wing contrived by the local "lift". He measured the resistances of slender shapes, struts, wires, wheels, cylinders, spheres, etc. Since then, about forty wind tunnels (20 in the U.S.) have been built, and the use of wind tunnels has increased 200 percent, constituting an essential factor in the science of aerodynamics. The character of work done was rapidly double wind tunnel two classes.

(b) Tests of complete aircraft models, to predict performance

(c) Researches on the general principles of aerodynamics. The French (and of complete models for performance prediction) frequently concern previous sections and enables the researcher to satisfy himself of the merits of a proposed airplane project, without awaiting actual flight tests of his product.

The utility of such tests is well illustrated by the case of the Boeing B-17 Bomber. This, with its six engines was, in 1922,

the largest plane ever built, and embodied many features which, if only from their very size, were novel and unusual. However, by means of a wind tunnel test of a scale model the probable performance and stability were predicted (Fig. 1). The great plane went into the air on its initial flight depending for its stability on the results of this miniature model of itself—the "stability" was set exactly to the angle re-



(Fig. 3) A wind tunnel test section.

used at the wind tunnel. That the setting was correct was of course obvious to the pilot who, as he later reported, found the plane to balance perfectly, and to fly "hands off." (Fig. 2).

Had no method been available for correctly predicting the stability setting, and had a check-up resulted, the loss in money alone would have been very great. In such cases as that of the Boeing B-17, after many trials, the "stability" would have been damaged. During the past few years the McCook Field wind tunnel has thus turned half a hundred experimental projects running into several millions of dollars value. (Fig. 3).

A typical case of performance prediction would be now seen as follows—

(d) The designer will lay out a proposed new airplane to



(Fig. 4) Air flow on a model of a Thomas-Morse airplane during a photograph in the wind tunnel.

most certain requirements, and if the design is at all sound, he will require a wind tunnel test for prediction of speed, stability, and control.

(2) Drawings for the proposed design will be turned over to a specially trained model maker, who will construct a scale

model of the flying mechanism of different wing shapes, for tail area, and speed characteristics. In this manner, it is anticipated that the aerodynamic characteristics of the aircraft will be known.

There are also the developments of speed measurement, balanced control surfaces, compensating gear-shafts, etc., which were developed for the Wright brothers' first flight. On the basis of these and other aircraft developments, it is recommended that the wind tunnel test be conducted on the wind tunnel with great saving of time and resources as compared to full flight tests. Many test flights could not be made at all, except in the wind tunnel. For example, the project of using the wing itself as a radiator for the engine cooling water. A fast airplane using this type radiator was being tested under flight conditions.

Wind Tunnel Test Detects Faults

Following experiments in the aviation performance, a wind tunnel test was made as follows: A typical full-size model of the "Wing-in-ground" was mounted in the Air Corps tunnel (Fig. 12); inlet and outlet pipes were attached for the circulation of hot water through the radiator; the air stream was turned on at full-flight speed, the temperatures of inlet and outlet water were observed and also the rate of flow. This resulted in a knowledge of just what happened in this particular part of the aircraft. The heat loss in the water was found to be considerably greater for the radiator section in the tunnel than when on the flying airplane. Search for the discrepancy revealed the fact that, in the latter case, the control surfaces, rudder, elevator, and ailerons, with the propeller functioned



Fig. 11. A 1/10 scale model of an early Wright biplane, mounted in wind tunnel for performance and stability prediction.

much about three to six feet apart, with or without propellers and were used. The weight and cost of this model is not important.

(3) This model will be mounted in an air stream of about 30 ft. sec. and 125 mph velocity. The various strengthening devices, speed control and measuring apparatus, wire balances and supports, etc., will be of approved type such that the forces measured will have a true relation to the numberless tests made by the Wright brothers. The results will be both time and speed mandatory. A note for greater care in conducting aeronautical tests of air flow such as ventilating ducts, etc.

Scale Effect Taken In Account

The lift and resistance curves measured can be graphed by hand and applied to the full-size aircraft with the aid of some simple calculations, based on the weight and operating factors existing in the wind tunnel operation. Knowing what the aerodynamics of the plane will be, the designer may then calculate his propeller so as to furnish the "Horse" necessary to overcome the resistance factors mentioned in all the engine power, propulsive efficiency, and airplane resistance thus enables him to predict the speed, range, etc.

The third class of tests includes the many air-flow studies of air flow which, while adding to the general science of aerodynamics, and the designer only indirectly. Fig. 13 is an example showing photographs of the air flow, with its skin friction over a model fuselage. Other examples are, determinations of the most efficient shape for airplane landing gear, development of the most economical form of aircraft wings, development of both high stage of induction air-holes, holes in the upper surfaces, studies of the air flow existing at very high velocities as in propeller tips, calibre changes of propellers, and other air-speed and ratio's in a



Fig. 13. Air resistance test on Wright biplane cockpit test.

After this diagnosis it was easy to apply sound methods. Instances could be multiplied indefinitely of safety and health realized by the application of the world's best scientific research to aircraft development. The last item has the same place in the field of aeronautics as do the Wrights or General Electric Co. Laboratories in the electrical field or the General Motors Research Laboratories in the auto or oil field.

It is significant that in the post-Wright leadership in no

parties of the testing techniques of different wing shapes, for tail area, and speed characteristics. In this manner, it is anticipated that the aerodynamic characteristics of the aircraft will be known.

These are also the developments of speed measurement,

balanced control surfaces, compensating gear-shafts, etc., which were developed for the Wright brothers' first flight. On the basis of these and other aircraft developments, it is recommended that the wind tunnel test be conducted on the wind tunnel with great saving of time and resources as compared to full flight tests. Many test flights could not be made at all, except in the wind tunnel. For example, the project of using the wing itself as a radiator for the engine cooling water. A fast airplane using this type radiator was being tested under flight conditions.

Prize Total \$150,000

Aircraft entered in the Guggenheim competition is designed to provide certain characteristics and qualities which were required by technical experts to basic principles of aerial safety. Many of these characteristics and qualities have been individually attained in competing planes. Our efforts now go to combine these and other principles into a "safe airplane," which will perform under trying conditions to meet our requirements from a design point of view.

The Safe Aircraft Competition for Prizes totaling \$150,000 was announced April 30 as part of the program of the Fund which has for its primary purpose the securing of funds and money to promote safety in flight. The Competition will close on Oct. 31, 1929 or at any time prior to that date when the trustees of the Fund may consider that the object of the competition has been achieved. Tests will be carried on and aircraft judged from time to time throughout that period at Mitchel Field, L. I., where Maj. Howard Davison of the United States Army Air Service has been appointed Field Manager.

Weather Reporting Stopped

THIS U. S. Weather Bureau recently announced that it has discontinued its general Atlantic weather report service to commercial firms. This marks the close of 1927 flying season as far as the Weather Bureau is concerned. In making this announcement it was stated that this action was taken because of the considerable cost involved and because of the unprofitability of favorable flying conditions near the North Atlantic before early spring.

The trans-Atlantic weather reports which have been furnished since early spring were an exception of the New York Weather Bureau this year. Dr. James H. Marshall, meteorologist of the bureau, who flew in the spring that there was a real need for accurate weather data on the North Atlantic, made a study of the field and systematized the handling of the report. The reports, which were issued twice daily, were compiled from information received by wireless telegraphy.

Byrd's Plane Tested

THIS WE'RE recently made at the Ford Airport at Dearborn, Mich., as a Ford-Blast three engine monoplane by Floyd Bennett and Bert Balchen. It has been stated that these tests are to be made on several types to determine the planes that Conchy Michael E. Byrd will take on his South Pole Expedition next year. It is understood that in addition to a three-engined plane, two or three single engine planes will be used.



Fig. 4. Residential airplane photographed at Air Corps wind tunnel.

stage of wind tunnel testing; from these laboratory efforts resulted the extremely stable airplane and its record of the World War Engine test and as a record aircraft driver. The Germans, the French, the English, the Americans, and the French gave Germany leadership in transoceanic aerodynamics, and it was that country which led the world in the reduction of drag and of steady metal-blade trailing-edge airflow, aeronautically, aeronautically.

It is gratifying to note that, in America today the Daniel Guggenheim Fund has established the new wind tunnel and transonic aerodynamics, thus recognizing the necessity of an adequate background for the future development of American aviation.

Entries are Announced for Safe Aircraft Competition

B

ANNOUNCING the first entries to the International Safe Aircraft Competition which was recently opened, Harry F. Judge, vice president of the Daniel Guggenheim Fund for the Defense of Aviation, announced the following:

For 1. First time in the history of aviation, concerted efforts are being made by manufacturers and designers to secure the highest degree of safety in design work which human nature permits. The solution of this task at the goal of the Daniel Guggenheim Safe Aircraft Competition, is a matter of international importance. Participation of famous aeronautical experts is expected of an international effort to overcome the difficulties of the art of aerial progress and is, of course, very gratifying.

For 2. The first time in the history of aircraft manufacture and as the first data when entries were acceptable, attempts to enter the competition. We have also said that the engineering forces of several of the largest American manufacturers are now making a ascertain what sort of plane they may be able to design later.

The British companies which have already entered the



The Boeing F3B-1 as a land plane.

The Boeing Shipboard Fighter

Type F3B-1 is a Single Seater Plane and is Powered With a Pratt & Whitney "Wasp" Engine

THIS BOEING F3B-1 is a single-seater shipboard fighter airplane, convertible land and seaplane. It was designed and built by the Boeing Airplane Co., Seattle, Wash., to meet the demands of the Navy for a high performance aerial combat plane for carrier service. The requirements have been filled so well that the Navy Department has ordered from the Boeing Company seventy-four machines.

It is a tractor biplane, and its appearance is strongly marked with the characteristic features of the Boeing family of fighters, namely, a powerplant with a Pratt & Whitney "Wasp" engine, which is easily converted into a fighter of good streamlining shape. The general arrangement and type of construction is conventional in character, and the plane shows its superiority in performance to aerial armament to defeat rather than any natural design of structure.

Upper Wing Built in One Piece

The upper wing of the airplane is built in one piece. A single operating system of rods goes positive control for each aileron. Ailerons are on upper wing only. Taxing is provided in the wing for extra gasoline required for ocean operations, thus obviating the very serious problem, faced in previous fighters, of raising and arranging special tanks in the fuselage, thereby increasing the weight, decreasing the resistance and reducing the speed of the plane.

The body of the seaplane is a chrome-molybdenum tube structure, with housing of sprung tie rods and drawdown tubes. In addition to the ordinary air and landing loads, it is designed to sustain the stress of launching from a catapult and of landing in the arresting gear of an aircraft carrier. The

engine mount is of tubular steel construction and is bolted to the fuselage framework, reducing the amount of work required on the assembly of the airplane.

The tail surfaces and particularly the central surface are very carefully finished to aerodynamic lines and are used to obtain cleanliness of motion in maneuvering, as the primary purpose of gunnery seaplanes is accuracy of hit.

The landing gear incorporates the standard Boeing type, also used, but the arrangement of the members of the gear is worthy of note. Considerable difficulty has been experienced in a number of landing gear as a result of excessive lateral motion of the wheels as they retract under the weight of

The tail-type landing gear incorporates the standard Boeing type, also used, but the arrangement of the members of the gear is worthy of note. Considerable difficulty has been experienced in a number of landing gear as a result of excessive lateral motion of the wheels as they retract under the weight of



The Boeing F3B-1 front view on the water.

October 1, 1925

AVIATION

869

airplane. This particular design is unique in that no lateral stability is provided. The dual landing gear is readily fitted to the land gear, and consists of one central wing float for lateral stability. It is claimed to sacrifice any feature contributing to maneuverability, but the author has not measured the loss in maneuverability by the conversion from land plane to seaplane, but in the first seaplane of wood construction, incidentally it will be of aluminum, special consideration having to faculty in computing.

Emergency Flotation System

In the opinion of the author, there is no case of a forced landing of the land plane that has been made an integral part of the design of the airplane, quadratically demonstrating that the emergency equipment which had been made by the Navy Department is not only unnecessary, but is positively dangerous. The author of the opinion, as in other respects, is not too anxious to, or perhaps is unable to, make his point, to emphasize fabric floats, particularly in the seaplane structure, and capable of adding when needed, the important difference being that the chief advantage of this system is so located that the airplane will float in the water at the body of the apparatus, which is located in the rear. The rear load is located in the rear, and, except in the seaplane in liquid form, a single single operation neutral steady to hand of the pilot, is provided.

The details of the emergency flotation and arresting gear systems have not been disclosed, but are said to represent a step in advance over previous installations.

Standard Steel Propeller Used

The Pratt and Whitney "Wasp" engine is used. It is a radial, air-cooled engine of 800 hp. A metal propeller of the Standard Steel Propeller Co. type is used without a spinner. The engine is fitted into a fixed nose gear behind the propeller, and is vented in such a way that control of temperature of the engine may be eliminated.

The pilot's cockpit is roomy and comfortable despite the large number of controls and accessories which radiate from the location, due in some measure to location near the center of the fuselage in the wings. Controls have been held and balanced previous to production, so closely that when a pilot of average ability can land a plane in one wing, he can land in the other. The control bar beyond follows the usual grouping of instruments of similar purpose to simplify operation. The pilot is located with a special view to fighting waves and is provided with an adjustable seat to raise the head of the pilot's eye for a precise landing. The rear cockpit has an adjustable fore and aft to provide comfortable position for pilot of different statures.

Lincoln Aircraft Co., Is Now Producing Two Planes a Week

THIS FAMOUSLY known Lincoln, N. H., is now producing two of its Lincoln Page biplanes per day. The biplanes each week, it is expected, will produce three times the production of last year in one day. The Lincoln Aircraft Company was the manufacturer of the well-known Lincoln Standard biplane of later Lincoln sport planes. It is now producing a conventional type light biplane powered with a new Lincoln OX-5, Hispano or Wright Whirlwind. All of the small OX-5 produced to date have been powered with Curtiss OX-5 engines.

This plane is entirely of wood, well faired with the doctor not necessarily seating two passengers. The engine is removable. It fails the engine is very soft a response at the propeller. The fuel tank has a

capacity of 60 gal. The engine cannot be easily removed as that any of the aforementioned engines may be installed. The plane is designed so that it can carry any set of float types without strengthening the plane in any way. The author is requested to note the engine, above the split type undercarriage.

There are four ailerons, balanced rudder and adjustable stabilizer. The Lincoln Page is easy to service having a good shock, and a wide speed range. The wings are of construction-



A line up of five Lincoln Page biplanes.

al construction with empennage strut of the X type of streamlining making. They are of the next type of construction with no center section.

The following specifications on the OX-5 powered Lincoln Page biplane were submitted by the manufacturer:

Area of upper wing, and above	130 sq ft
Area of lower wing, incl. ailerons	144 sq ft
Total wing area	284 sq ft
Horizontal stabilizer area	37.5 sq ft
Vertical stabilizer area	17.5 sq ft
Fuselage area	17.5 sq ft
Span of upper wing	32 ft
Span of lower wing	32 ft
Chord of upper wing	5.5 ft
Chord of lower wing	5.5 ft
Openings	50 sq ft
Passenger	20 per cent position.
Angle of incidence, lower	15 deg
Angle of incidence, upper	15 deg
Horizontal angle, upper	8 deg
Horizontal angle, lower	2 deg
Length of fuselage	23 ft
Gondola capacity	450 lbs
Height	500 ms
Engines	Curtiss OX-5, 80 hp at 1400 rpm.
Speed at sea level	180 mph.
Climb at sea level	600 fpm first 10 min.
Landing speed	35 mph.
Climb at 5000 ft	2000 ft.
Weight empty	1200 lbs.
Loaded load	1600 lbs.
Payload	450 lbs.
Weight loaded	2200 lbs.

Frederick Knack Joins Aerotech

FREDERICK KNACK, formerly in charge of full flight testing, a member of the staff for aerodynamics research at the Naval Ordnance School for Aerodynamics at New York University, is now associated with Aerotech, Inc., Boston, Mass.

Aerotech, Inc., announces that it is now ready to test and verify the performance of airplanes, including high speed, climbing speed, landing speed, rate of climb, service and climb, rate of roll and take-off and landing run. All results will be reduced to standard atmosphere to afford direct comparisons between airplanes, if desired.

The S.A.E. Holds Annual Aeronautic Meeting

All Six Sessions Well Attended by Leading Aeronautical Engineers

THE MIGHTY annual aeronautic meeting just concluded by the Society of Aeronautical Engineers was held at the Hotel Waldorf-Astoria in New York City, on Oct. 10, 11 and 12. The meeting was well attended, and many interesting and progressive papers were presented on most of the practical phases of aeronautical aviation delivered by well known authorities. The scope of topics for many of the papers was made purposely comprehensive with a view to arousing discussions on many of the debatable points on the design of airframes, engines, aerops and on aircraft regulations. Among those present at the six sessions were representatives of nearly all of the manufacturers in the East and Middle West. In addition there were also airway operators and representatives of the various branches of the military and civil bureaus of the government, including William P. MacCready, Jr., aeronautic secretary of commerce for aeronautics and E. F. Warner, assistant secretary of the Navy for aeronautics.

The first session, on the afternoon of Oct. 10, was opened by Secretary Warner, chairman of the Aeronautic Meeting Committee. After a welcome to the 11th annual meeting, Charles M. Hall, the meeting general chair, Prof. Alexander Kline, chairman, addressed the first meeting. The first topic was "Structures in Metal Construction" with papers by William H. Sturt, Sheet Metal Amplite Co.; Charles Ward Hall,

Charles Ward Hall, Inc.; John Eads, Wright Field, Camp K. D. Weymouth, Naval Aircraft Factory; and Igor I. Sikorsky, Sikorsky Manufacturing Co.; Maxine, Smith, and his associates, continuing in more detail their individual analysis of the most far reaching consequences of aeronautics. Mr. Hall dwelt on the need for the application of scientific thought, while Mr. Eads discussed his methods used in applied aerodynamics for wing and fuselage aeronautic engineering, and bolted open sections, stress in aeronautics, aeronautics and production viewpoint. Charles Ward Hall brought out some very interesting features in his construction. In paper Mr. Eads discussed in some detail "The Relation of Materials for Aircraft Structures". He discussed the materials most suited for various parts of airframes of different types, in addition to when it is wise to add weight to obtain a reduction in parasite resistance. Commander Weymouth suggested wood and metal as commendable materials for aircraft with special reference to the design of flying boats and flying boats.

This session of papers was followed by a very lively discussion which Mr. Sturt brought out by his payment of \$1000 for the best and most effective paper presented on the design of commercial airplanes. This factor was followed by many of the prominent designers of airplanes present including Anthony Fokker of the Atlantic Aircraft Corp. According

October 12, 1927



Left: William P. MacCready, Jr., aeronautic secretary of commerce for aeronautics, who discussed a paper on "A Commercial Airport for New York." Center: Lt. General George Clegg, commanding officer of the 1st Pursuit Squadron, U.S. Army Air Service. Right: Edward E. Warner, assistant secretary of the Navy for aeronautics, who acted as a session chairman and was also the chairman of the aeronautics committee.



to Mr. Fokker the appearance of an airplane never before so plain than to the layman going for his first flight. The problem of selection of duralumin was discussed by various manufacturers who will succeed to offer air mail presidents among its members, Mr. Sturt saying that a pointed answer is unknown. This discussion was followed by a group of speakers including "Testing the Wind Tunnel" by E. F. Warner, of Wright Field.

The second session, held that evening, included papers by Clarence M. Young of the Department of Commerce and Gandy E. W. Stoltz of the Department of National Defense, Ottawa, Can. Mr. Young outlined some of the activities of the Department of Commerce concerned with aircraft regulation, discussing many of the questions that have arisen regarding aircraft regulations. Commander Stoltz described his difficult experiences in regard to the encouragement formation of the control of civil aviation in Canada during the past seven years. This was followed by two papers, one on "Monoplane or Biplane?" by G. H. Chatfield and another on "Engines Versus Multi-Engines Planes" by Anthony H. Fokker. In the discussion that followed Mr. Stoltz brought out that he had encouraged both monoplanes and biplanes, with the resulting deduction that there was little difference in performance though the monoplane was cheaper to produce.

Visit Made to Hadley Field

The sessions of the second day were on airways and navigation. Papers were presented on "Oceans Navigation" by Capt. Albert Hegenberger and Lindsay James of Wright Field and on "Instruments for Overseas Navigation" by Victor H. Gevers of the Pioneer Instrument Co. The problems in navigating airplanes and the calculations for long flights are taken up as well as the details of the instruments themselves. At this session Secretary E. P. Warner spoke on "The Development of Commercial Aircraft in the Naval Services." In this discussion Secretary Warner emphasized the lack of training in the naval services in aircraft operation.

This evening the members and guests proceeded to Hadley Field, New Brunswick, N. J., to see the night air mail service take off. At Hadley Field papers were presented by R. E. Holden of the General Electric Co., and by P. B. Nason of the Sperry Gyroscope Co. Mr. Holden discussed the

lighting of airports while Mr. Russell Noddie spoke on the road and equipment of airways.

The afternoon of the last day, Oct. 10, Gipsy Chamberlain of Wright Field presented a paper entitled "Calculated and Actual Performance of Supercharged Engines". The paper outlined methods producing power output as well as decreasing engine weight and weight per horsepower. It was followed by a very interesting discussion by E. Y. Jacobs, president of the Wright Aeronautical Corp. and R. A. Moore of General Electric Co. Capt. C. H. DeFleckenbach spoke on "Maintenance of Wright Air-cooled engines in Commercial Operations" and John Niles spoke on the "Plan of an Airport in a City Plan". Captain Hiddenski presented some very interesting figures of the cost of operating the Colonial Air Transport from New York to Boston.

That evening the Metropolitan Section of the society held a meeting on airports at which papers were presented by Secretary MacCready, on "A Commercial Airport for New York City", by William E. Arthur of William E. Arthur and Co. on "Designs and Construction of Airports" and by Gen. J. F. O'Rourke, president of Colonial Air Transport, Inc., on "Airports and Their Relation to Civil Aviation".

Cartiss in Commercial Field

ANNOUNCEMENT HAS BEEN MADE that the Cartiss Aeroplane and Motor Co., which is now building military planes at its factory at Garden City, Long Island, N. Y., and aircraft engines at its plant at Buffalo, N. Y., will shortly enter the commercial airplane manufacturing field. It is understood that the commercial planes will be manufactured at such locations, January, possibly that of the Standard Aircraft Co. of L. L. C. Mac. The announcement, issued by Maj. William E. Robertson, new commander of the recently reorganized 2d Pursuit Squadron, was received with satisfaction at the intention of manufacturing commercial airplanes, provided with Cartiss engines.

The announcement by the Cartiss company comes as a surprise to many who have followed its development. For nearly eight years the Cartiss organization has been one of the leaders in the manufacture of military and Naval airplanes and engines. The parent company was formed in 1915 by Gleason Cartiss.



These well known aeronauts in the aeronautical industry who acted as session chairmen during the 1927 S.A.E. Aeronautic Meeting. Left to right: Charles H. Cartiss, founder Cartiss Aeroplane and Motor Co.; G. L. L. C. Mac, new commander of the 2d Pursuit Squadron; and Prof. Alexander Kline, New York, chairman.



Spanish Air Regulations

In a legal sense, the Spanish Government has promulgated the following air regulations:

1. If the nationality of the civil airplane which studies to fly over Spanish territory is that of a country connected with Spain as regards aerial navigation, permission shall be granted by the Council of Spain at the point of departure according to the established agreement with said country, specifying that the permission covers regular international aerial lines in Spain (in which case there must be cited the special agreement of collaboration), or, if so the object of interest is to serve as established aerial lines, the same shall be stated and described.

2. If the nationality of the civil airplane or airship which wishes to fly over national territory is that of a country with which Spain is not connected as regards aerial navigation, it shall not be possible for said air machine to serve as regular international air line, and for individual passengers or mail to receive in Madrid authentication through diplomatic channels connected under the following conditions:

- (a) Complete compliance to provisions of flying over prohibited areas.
- (b) Provisions to take meteorological apparatus abroad with the aircraft.
- (c) Aircraft permitted to fly over Spanish territory which carry wireless equipment, shall have radio telephone facilities.
- (d) Aircraft, with aircraft having radio telephone facilities, shall have radio telephone facilities.
- (e) Provisions to take meteorological apparatus abroad.
- (f) Aircraft, with aircraft having radio telephone facilities, shall have radio telephone facilities.
- (g) Aircraft, with aircraft having radio telephone facilities, except those mentioned above, shall have radio telephone facilities.
- (h) The Spanish Ministry must be advised of all modifications made on the basis of the above items.

3. Aircraft belonging to foreign States, military or for official service, shall always require, whatever shall be their nationality, special authorization effected through diplomatic channels.

4. When a foreign air machine without previous permission to fly over Spain lands in territorial waters because of force majeure, the pilot shall present himself to the nearest marine authorities and answer from them due instructions.

5. All foreign air machines flying over Spanish territory must be registered and have valid documents of such registration and nationality, and shall carry aboard the certificate of registration. Furthermore, that the personnel of the crew is duly authorized and can exhibit documents showing such authorization, including that of the wireless operator, (if permission has been obtained conceding the right to carry aboard a wireless installation), the certificate of navigability of the aircraft according to its own country next to which it is registered, the log books must be properly associated to the day, following the arrangement and model set down by regulation of the ministry of nationality of the aircraft, it shall be able to show a circular way or diplomatic authorization by which has been conceded to it the right to fly over Spanish territory, the manifest of the visual cargo, the contract of metal transportation (bill of lading), if it carries merchandise, list of passengers of such vessel aboard, and list of passengers authorized by police authorities of country of origin and the Spanish Council there.

6. Foreign air machines flying over Spanish territory shall

give careful attention to the rules in regard to lights, signals, general air traffic, especially in proximity to airports, and places where they expect to operate, other regulations are given which may apply to other countries by order of the Council.

7. Besides these basic principles, allowances must be given to any special regulations existing at any time in Spain, to general aviation regulations, to regulations for the transportation of persons and goods, and to public order and safety.

8. The authorized foreign aircraft on arriving in Spain and landing at whatever airport, if there has an office of customs there shall immediately clear therein, and, if not, shall present themselves to local authorities, declaring themselves to be completely unaffected by the responsibilities of custom regulations, etc., if affected, shall show such certificates the proper documents and fully justify the determination of such authorities. Equally, local police regulations shall be followed.

The authorized foreign aircraft flying over Spanish territory and addressed to land by force major elsewhere than at an airport shall present itself to local authorities from whom instructions will be received.

9. It is prohibited to aerial navigation over Spanish territory:

- (a) To carry Italian aircraft, aviation in the sea and water.
- (b) To carry explosives, arms or weapons.
- (c) To do gunnery trials, aerial bombing or incendiary bombs.
- (d) To do aerial navigation in areas where there are no civil flying routes or areas in search of people in case of emergency.
- (e) Flight shall not be permitted over the prohibited areas established at Ferrol, Cadiz, Cartagena, Huelva, Pontevedra and Vigo, Tarifa, Algeciras, Costa and the Island of Menorca. Whenever in the vicinity of these prohibited areas, if the pilot shall hear the signal of these shots at intervals of ten seconds, they shall stop immediately.

Czechoslovakia Sets in Spain

J. Walter and Company of Jena, Czechoslovakia have sold five Walter radial engines to the Spanish Army.

The order consisted of 2 engines of 220 h.p. and three of 85 h.p. This is stated to be a trial order with larger orders depending on the results of tests made by the Spanish Army.

Compendio to Assist Flying Clubs

The Czechoslovak Government will assist in the formation of flying clubs to promote commercial aviation. Each approved and incorporated association will receive two light aeroplane free of charge, on condition that adequate hangars, repair and maintenance facilities are provided, a flying field is established and qualified instructor and licensed air engineer are employed. If the demand for flying justifies additional equipment the Government may issue, each year after the first, one light airplane provided that the association supplies a similar number of an approved type.

Proposed Aid to Japanese Aviation

The Japanese Ministry of Commerce has recently approved a subsidy bill to be distributed at the next session of the Diet. The general purpose of the bill is reported as to provide a guaranteed dividend of 8 per cent. for a period of ten years to a company which will promote aviation.

Side Slips

By ROBERT E. DODD

It can seem to have been kidding a passenger. New York really threatened and literary magazine. The following is a recent short article therein, on the subject of aviation and planes some high but we are advised that many people who write nothing elsewhere have thought up plans to cover most of the world at twenty-three thousand and eleven. Accordingly, we have taken up by you the frequently this to be better with care. Of course, we can't name the type of "star plane" the writer had in mind, but if our names are correct, twenty-three thousand would keep you about twenty-four of them.

Also in the same article—"Extreme flying about New York is restricted now by lack of a landing field. One may not take off at Carter or Roosevelt fields unless one makes a longer tour."

Rosevelt Field has two hangars which, barring several special occasions such as the trans-Atlantic flights and flights Derby, have not hosted any plane for about six months. Any good day a visitor to that field would see no airplanes from 8 a.m. to 4 p.m. planes using the field without restrictions.

A Brooklyn man has seek a bill to the government for \$10,000,000 for "services rendered in the elimination of intense weather conditions in the United States of America in relation from Vermont to Kansas." This bill seems to be for controlling atmospheric conditions and decreasing the

elements to the financial advantage of insurance, building and agricultural economies over a period from 1930 to 1938. We suggest that, if the government decides to pay this bill, the cash be used for about \$10,000,000 damages for the class of weather he has been providing for the past for the last five years. * * *

Some of the newspaper have been making quite a few suggestions in a few of the statements appearing in the New York tabloid paper which purchased Ruth Elder's flight story. The statement which appears to them to be least acceptable is the one from which we quote as follows: "The idea, knowing that the chances of landing on the ocean were poor at best, resulted that they would easily make unless the plane was righted. Readily reasoning such other, they decided that the only thing to do was to get the greatest speed on the task of the accident. To do as involved flying and the fastest. Taking into account the fact that the plane had to be turned over the first overboard." The objectors to the story have their objections on the fact that no fuel was stored where, in order to prevent it, would be necessary to climb up on the fuselage with a flight even if there were a point in doing so.

Knowing tabloid, newspapers and editors as we do, it is our opinion that the authorship of this story is not difficult to trace, and we agree to defend Miss Elder. Our editorial hot is still off to her; we were glad the flight ended so fortunately when it became impossible to reach Paris, and we hope she makes a couple of millions of dollars easily. Furthermore, we'd like to inquire why all of this fuss over the crashed airplane? If the California fliers can overland planes and motors in flight and the Mexican fliers can do the same, a run-around to distinguish a burning wing, isn't one of the main attractions there about around a fuselage with a point in doing so?



THE LAIRD COMMERCIAL WHICH WON THE N. Y. TO SPOKANE AIR DERBY

Powered with Wright "Whirlwind" 225 h.p. Engine

Equipped with

SCINTILLA

Aircraft Magnets

SCINTILLA MAGNETO COMPANY, INC.

Contractors to the U. S. Army and Navy

SIDNEY, N. Y.

the low landing speed of this type makes it more suitable for the student as it gives him more time in which to judge his distance before landing, than a fast plane.

A new specially built one-engine experimental plane, also is powered with a 350 h.p. Hispano-Suiza, was recently tried out and the performance exceeded expectations.

All types of repairing is done at the shops of the Buhlertair Aircraft Co. and parts are available in the large warehouse.

The Buhlertair Aircraft Corp., dealer for the Englewood in eastern Missouri, Arkansas and southern Illinois, has ten students receiving flying instruction at present.

The solo flight is being made in a Standard but all training will soon be done in new Englewoods.

J. J. Andley and Dorey Reed made a trip to New York in an Englewood during their vacation and reported a good trip without any trouble.

The city of St. Louis is planning the purchase of the Laclede-St. Louis Flying Field, the tract of land located about nine miles from the city limits and thirteen miles to the port of entry, on which the American Aircraft Co. and other commercial aviation companies are carrying on their activities.

The plan that has been recommended to the Municipal Airport and Scope Committee by its committee is to finance the immediate acquisition by the city of this field as follows:

The cost of purchasing the 160 acre site at \$250,000 while detailed improvements of \$144,000 will mean a necessary expenditure of \$700,000, which amount should be raised by a bond issue during the November election in 1938.

In the meantime A. E. Larcher has offered to rent this field to the city for the nominal sum of one dollar per year until the proposed bond issue is passed and suggests that public

opinion estimates make \$25,000 to provide an option on the remaining 275 acres.

The sum will be applied as first payment on the purchase price and will be refunded to the generators of the bond issue if approved, otherwise the sum of \$25,000 becomes a loss to the generators.

An estimate of \$5,000 has been made as being sufficient for administration, which sum would be under the supervision of the Park Department and no funds made available by it and advances passed by the Board of Aldermen of St. Louis.

Kansas City, Mo.

The progressive citizens are not content with a field that is far from town area, though it is well equipped and well known, as Kansas City is now of a place in itself, on which two large hangars have been erected.

It is the need to well to make a field easy to reach and so the people are not always aware of the location of their own airfield, therefore should be placed at convenient points that lead to the airport.

Kansas City has taken into consideration the two short points, as the new municipal airport is easily located and is conveniently reached.

The old Richards Field is still being run by the Detroit Englewood Sales Co., the dealer for the Englewood in western Missouri and eastern Kansas.

This 160 acre field is approximately eleven miles northeast from the center of town and can be conveniently reached by way of a secondary highway.

On arriving by air, there are two lakes one mile east of town, one having an island, which can serve as a landmark.

The Detroit Englewood Sales Co. is conducting a flying school that covers the operation and maintenance of a plane, including a thorough ground course that prepares the stu-

dents for the responsibilities of the Department of Commerce regulation.

Only Englewoods are used and these courses of instruction begin soon after learning flying, with the student taking his own landing field.

There are almost 20 men in training and this number would be large but those who do not possess the necessary qualifications to become pilots are wasted space.

The 10 planes in use at the field both day and night, are single engine biplane and accomodate about 20 small passengers. There are no lights at the field but they can be screened whenever desired. There are no night flying, but lights will be lighted when some flying is done at the place after dark.

A special freight airplane is used to move the mail to and from the field to the terminal and flight inspection.

The American Eagle, which is manufactured on frame to meet the field to be assembled and flight tested, about 8 or 9 planes are mostly completed and ready.

The National Air Transport, Inc., occupies part of the large steel hangar, which is heated during cold weather for the comfort and efficiency of the mechanics working on the planes.

Pilot and pilots are generally changed at Kansas City, starting three going north to Chicago and the others going west to the southern terminus of the contract air mail route at Tulsa.

The movements of all planes are directed as well as reported from the operations office located in Kansas City.

The National Air Transport, Inc., will occupy one of the hangars at the new municipal airport, when the field and construction work is sufficiently progressed to allow operation without interference or unavoidable delay, due to the condition of the field or insufficient equipment on hand to care for an emergency.

Fairfax, Ill.

The city is an air centered air mail route operated by the Illinois Airways Co. between St. Louis and Chicago. A regular passenger service is being planned between the two main points on the route, with stops at Peoria and Springfield.

There are about five planes regularly at the seasonal field, which covers forty-one acres. These planes are used for passenger carrying, aerial taxic and aerial inspection.

The Vultee Aviation Co. has the agency for the Am-Kang, while the Englewood is sold by Elwood Gads.

The United States Cigar Store plane and the Royal six mark have visited this field, as they have done in a number of other throughout the country.

The field, which has been in use about a year, is located about 15 miles from Peoria on a concrete pavement and is equipped for night flying. A hangar with about a four-plane capacity has been erected at this airport.

Buffalo, N. Y.

By Robert K. Brown

airport, called by Colored Pittsburgh one of the oddest ever seen, has been the scene of unusual activities. For the first time in its history it has been the center of war flying and military aviation, during the early days of the war between nations. More than 4000 visitors flocked here from all over the country. The Fairchild Air Races took part in the racing which is expected to be the forerunner of a regular racing school here.

The flying school opened with a lecture on paramilitary equipment delivered by Harold G. Rogers, governor, assisted in his demonstration by Ben Gould,

October 31, 1937

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250 ft. nose was attached to give the engine more aero-ports from which to start certain of both turbines and in return. The last all metal Junkers cabin plane built by Ely was used considerably in this picture.

The Aero Corporation of California Field has been having fine place due to the many workers transferred from Spokane who close to step off at Los Angeles on route.

Casey Jones spent the five days at the field, flying a new Waco, engaged Douglas Eddie Stevens, Jim Stinson, monoplane, to the field, with Bill and Fred Koehler, co-pilot Jack Whitsel and Alex H. of Vassar Oil Co., as passengers.

Jack Ery, president of the Aero Corporation, in charge of the Duran Englehardt factory sent west on the Englehardt Barn out here by J. A. McElroy, Englehardt sales manager. From Duran Jack will go to the Puff's factory in New York to take delivery on another Universal which he will fly back to the coast.

Mr. McElroy is sure of the field and is certain that the Englehardt factory will locate an assembly plant here early in order to handle the large volume of business awaiting in the future.

Walter A. Hasenauer, shop supervisor of the Aero Corporation of California has served two World War years were modeling his own equipment and is delighted with the ability of his mechanics to overtake any type of engine that they have a complete new machine shop.

An Englehardt has been delivered to Bob Lefferty of St. Paul, another to A. R. Conner of Los Angeles and a long wing Englehardt was delivered to Charlie Mayte of Tucson, Arizona.

The United States Air Lines, Inc., has announced that it will inaugurate a coast-to-coast passenger airline with a nonstop flight between Los Angeles and New York by way of Arizona, New Mexico, Oklahoma, Texas and Missouri. All operations plans have been prepared and the company has announced that sets or will start no later than Jan. 1, 1928.

A large air search will be held Oct. 15 at Steven Field at the San Fernando Valley. This is one of sixteen fields which have been offered in the original plan. The search will be conducted after the first American. The original was made by Mr. M. Polley and was broken by heavy rains in the St. Francis Valley, which is northeast of Los Angeles City. The site is said to be the deepest that has been offered or located about fifteen miles from the Los Angeles post office. The flying conditions at the field are described as nearly perfect as they could be, with an absolutely level terrain, no obstructions, a runway of over a mile, and a constant westerly wind. The field is high and well drained and easily free from water. The removal was featured by many parachute jumpers — a large exhibition of commercial aircraft and the usual red red.

Coffeyville, Kan.

Mr. M. B. Washburn, Thomas Hilt, local agent for the Standard Airplane Co. of Wichita, has established an airport at South Coffeyville. They have four new Standard and flying instruction is conducted.

Mail passenger flying is also done. Mr. Hill can not yet fly low altitude in the New York to Spokane (Class 1) for Derby, which was piloted by J. B. Goldsworthy, chief pilot at the airport.

San Diego, Calif.

By Andrew C. Brown
Standard Oil Co. Charles A. Lindbergh has flown his newest aircraft, St. Louis, as far as the average automobile can travel in Africa and has covered all the distance, without a scratch, in less than a week. The plane, together with a side cockpit to carry with him, The classic, together with a side model of his famous "Spirit" was presented to

the National Aeronautical Association. The "first place" type and is known as a little type of aileron gliders which will open rapidly under pressure. It is called the "colonel" used to be used in England for jumping from three man paratroopers until 1918. Since hopping off in trees became legal, the colonel is a shade, but nevertheless will carry this in the Spirit.

Class III.

By B. M. Johnson

The first month of passenger carrying service out of Chicago by the National Air Transport, Inc., headed 167 passengers, coming to Col. Paul Henderson, vice-president and general manager, on a statement issued Oct. 1. Services of the company have between Chicago and New York and the after 900 round-trip on the Chicago-Dallas route.

The first month also saw 50,284 lbs. of mail were carried during first month. Day planes on the New York division cost \$2,000. By night planes, \$7,000 lbs. and on the Dallas branch, \$475 lbs. were taken in all. No night planes due to bad weather conditions.

On Oct. 1, in the first month totalled 5,162 lbs., at which the Dallas route handled 950 lbs. and the others the balance.

With 500 planes can now learn the art of living in a night plane and a Chicago. The Aeromarine Institute of Technology has added a course in naval aviation to the curriculum of its eight school. The course extends through two semesters for a total of 120 hrs. in ground school work. Subjects include art of flight, navigation, engine, section engine, communications, aerodynamics, aeronautics, handling of nephrons and practical flying.

Navy reserves officers will select likely candidates for flight training during the second semester and carry them in a reserve list. Six weeks summer flight training will then be given those lucky men at the Great Lakes naval training station. This includes ten hours of flying instruction and their basic 120 hrs. flight. A commission in the naval reserves is the price for those who then pass the examinations.

Albert Edward Adickmann of the Chicago city council, chairman of the Chicago Aviation committee, has arranged a drive for a \$25,000 fund to finance a flight from Warsaw, Poland, to Chicago next May. There are more than 1,000 Polish in any city of Poland, the number increasing to 500,000.

William Hale Thompson of Chicago has issued a call for a new aviation congress to assemble in Chicago Dec. 25 to 27. The meeting is designed to discuss Chicago's possible national flying center. Mayors of 3,000 cities have been contacted, as well as aircraft manufacturers, pilots, mailing field operators and representatives of other branches of aviation. General aviation in all its aspects will be discussed. The Chicago area manufacturers, association of engineers and others and even clubs will soon be invited. Weather permitting, the program may be staged on the lake front with all types of aircraft participating. An aircraft exposition will also be staged.

At the annual model airplane tournament in Memphis, King of Chicago carried off the greatest number of awards. He was first pilot and two seconds, winning a total of 10 points with which he was given leadership in the class.

In the highest Jada class Ernest Morencelle of Chicago scored 10 points, two seconds and two third places. Local masters for Chicago included John Rosich, John

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and it is planned to make it an annual affair with more planes next year, and more cities visited. At every one of the towns on the schedule that the fliers visited they received a royal welcome despite the safety worries they caused. After several days before the flight the various representatives of the individual concerns who were to be represented in a plane on the flight met to draw their respective planes. At first the Air-King plane was assigned the Landau-McD. 6000 Co., Nash Motors' Travel Air plane, with Karl A. Braun as pilot, and the Aluminess Goods Manufacturing Co., of Milwaukee, was given an Air-King plane with J. V. Phillips of Madison as pilot.

Bruce Austin, flying a Travel Air plane, represented by Harry L. Peeler in a Wisconsin, and the Pabst Corporation's plane and pilot, Mr. Frank Englehardt, piloted by Capt. E. L. Lightfoot, also appeared. Each plane had its own radio equipment. The Wisconsin News crew on Lockheed plane, and the Milwaukee Journal was represented by Mr. Englehardt, piloted by G. C. Chamberlain. A Stinson-Detroit carried Capt. C. R. Collins, Detroit, radio, Harry B. Grimes and John Deno of Collier's Publ. The Milwaukee "Advertiser," Thomas Hinde, his all-sail plane was also supposed to take part in the tour but did not arrive in time from Spokane.

Every one of the cities visited had a welcoming committee on hand and officials of the cities declared a half holiday at the same time and people of the town could witness the arrival. The first city visited was Sheboygan where Capt. F. Test hosted the official welcoming party. Major Horace Sekula of Sheboygan then flew in one of the planes to Milwaukee, the next stop. From Milwaukee the planes flew to Green Bay on the following day.

At Oshkosh the new airport was dedicated when the plane which had been the largest eight-passenger plane ever built with straight metal construction, was flown in from Milwaukee, Wis., and was welcomed by the Oshkosh Airport, Inc. of Milwaukee, Wis., the only woman making the trip, joined the tour. She was Mrs. E. S. Quinn, wife of the president of the Madison Airplane Corporation. The last stop before returning to Milwaukee was made at Bismarck.

It is interesting to note that the planes carried at each stop of the journey between the cities either a passenger or freight equivalent to the weight of a passenger. Many of the stops in the various cities cooperated in the event to assist goods by airplane. All the planes were imported to Milwaukee, Wis., making these arrangements for the Department of Commerce. They are Gilbert L. Seaman, Milwaukee, and George H. Nease.

October 11, 1937

AVIATION

an G. E. Baker, Lee J. Landry and Waldemar C. Wible of the Sherman of Madison, Wis., of the Boyd Airways Company, will make the return between Madison, Milwaukee and Chicago. The other members of the crew are: Mr. E. M. Smith, Mr. B. F. Fenzel, and Alfred C. Branson.

The company has purchased a Travel Air plane which is to be lightning dips over Madison and vicinity and the new passenger service starts. The corporation is made by the Madison Airways, Inc., the Royal Rapid Transit Company, Chicago, Marathon Motor Coach Company, Milwaukee, and the Wisconsin Wings, Inc., Milwaukee, the three new firms also being officers of the Milwaukee Airline, Inc., to deal in airplanes and parts and to conduct a flying school. Members of the company are Joseph Glasmann, William C. Williams, and Michael Schatz.

Roslyn, Wisc.

What can we best hope converting ships at Air City into a stable airfield station? On the main floor of the building will be six offices for the National School of Aviation, the Air City Transport & Assessment Company, the flight school, chief pilot, chief instructor and chief engineer. This will be on the exterior of the building, surrounded by the offices, while the second floor of the structure will hold the open quarters for the men.

The place will be called, "A Home for the Boys Who Fly." Formerly kept as research laboratory in this building will be converted into the lounge.

A meeting of the congressional branch of the United States Department of Commerce requested all pre-purchase flying stations to take a complete physical examination from a physician authorized by the department before they may begin taking students.

Certificates are given successful candidates for the physical examinations. Without the certificates no officer may give a student flying instruction. There are only two physicians in Wisconsin making these examinations for the Department of Commerce. They are Gilbert L. Seaman, Milwaukee, and George H. Nease.

Superior, Wisc.

By M. C. Stroessner

Not far from St. Paul since autumn, the first salesman to see an airplane in this region, is said here recently to call on one of his customers, Paul, who is a flying enthusiast. Mr. St. Paul, Wisconsin is a comparatively safe region in which to learn there are numerous fields, called "postage-stamps" in which a plane may descend when forced. Capt. J. F. Westover was Paul's pilot for the trip. Paul is now heading toward his federal pilot's license, and when he is fit to do so expects to use a plane regularly in covering his territory.

Madison, Wisc.

Mr. Ralph M. Jansell head of the Wisconsin National Guard, addressed the members of the Wisconsin National Guard here recently. He said that if successful, the number of planes in Wisconsin for National Guard purposes will be finally between Milwaukee and Madison.

He said that the Wisconsin next would consist of 100,000, of which would be stationed in Madison, Milwaukee. The purpose of the National Guard is to serve in available for national emergencies, to be used in case of emergency. Engineering services will be available to the University of Wisconsin, a college at approximately to be established at the university in a few years, interest will demand the construction, be

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Pilot desire position with airline company, 2500 hours in the air, mechanical experience dates back to 1918, expert navigator and prefer long distance flying. Writing to anywhere. Tax 650. Aviators.

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Wanted: Ansco 10 hp., air-cooled motor, must be in good shape with or without propeller. Ernest Hazebeek, 1146-11th St., Rock Island, Ill.

Wanted: Canuck, must be good. Will pay \$400 to \$500 each. Peoples Motor Sales, 18913 E Jefferson, Detroit, Mich.

Will pay cash for late model Swallow, Englehardt or Waco. Must be in good condition. Write full particulars in first letter. J. J. Gerry "Tucker", 2324 Fletcher St., Chicago, IL.

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